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10/827,525	04/20/2004	Esa Malkamaki	60091.00299	2764
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TYSONS CORNER, VA 22182				PAPER NUMBER
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			12/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/827,525	MALKAMAKI, ESA
	Examiner	Art Unit
	Abdias Mondesir	2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 28 September 2007.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-44 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-44 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 20 April 2004 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Art Unit – Location

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-5, 8-9, 11, 16-26 and 28-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Yi et al. (US 2003/0128705), hereinafter, referred as Yi.

In regard to claim 1, 31 and 34, Yi discloses an apparatus and communication method in a radio system, the method comprising:

associating each data unit of a logical channel with a logical channel-specific sequence number in a medium access control entity of a transmitter (paragraph 33-36; Fig 6, numbers associated with data blocks 180; paragraph 43)

In regard to claims 35 and 36, Yi discloses an apparatus and a communication method, the method comprising:

associating each data unit of a logical channel to be sent within one transmission time interval with one logical channel-specific sequence number in a transmitter (paragraph 33-37; Fig 6, numbers associated with data blocks 180; paragraph 43)

In regard to claims 2 and 11, Yi disclose the method in claim 1, further comprising,

receiving, in the network infrastructure, data units of at least one logical channel associated with sequence numbers in the user terminal;

and arranging, in a network element of the network infrastructure, the data units of each logical channel in order of the sequence number associated with the data units (see Fig. 6, arranged data blocks 13-20 in reordering buffer 190 of receiving side).

In regard to claim 3, Yi discloses the method of claim 1, further comprising performing at least one retransmission including at least one data unit of a logical channel from user terminal to the network infrastructure over the air interface (paragraphs 48-50).

In regard to claims 4 and 5, Yi discloses the method of claim 36, further comprising:

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associating each data unit of one transmission time interval with one sequence number;

and associating data units in successive transmission time intervals with successive sequence numbers (paragraphs 45-47)

In regard to claim 8, Yi discloses the method of claim 36, further comprising:

associating each data unit of a logical channel to be sent within one transmission time interval with one sequence number in a medium access control entity, in a radio link control entity or in a entity between the radio link control entity and the medium access control entity of the transmitter (paragraph 34-36).

In regard claim 9, Yi discloses the method of claim 8, further comprising arranging the data units of each logical channel in the radio link control entity, in the medium access control-d entity or in the entity between the radio link control entity and the medium access control-d entity of a receiver (paragraphs 41-43).

In regard to claim 37, Yi discloses the method of claim 36, further comprising:

associating data unit of a logical channel with sequence numbers in a transmitter such that a sequence number is incremented at most by one per on incremented transmission time interval (paragraph 34-37).

In regard to claims 16-20 and 24, Yi discloses a computer program that performs the entire steps described within the claims (paragraph 198).

In regard to claim 25, Yi discloses a network element of a radio system, wherein

the network element is part of the network infrastructure (Fig. 1, Node B 122);

the network element is configured to receive data units of at least one logical channel from a user terminal, each data unit of a logical channel sent being associated with a logical channel-specific sequence number in a medium access control entity of a user terminal; and

the network element is configured to arrange the data units of each logical channel in order according to the sequence numbers associated with the data units. (Fig. 6, data blocks 180 on transmitter side are transmitted and rearranged as data blocks 190 on the receiver side).

In regard to claim 28, Yi discloses a user terminal of a radio system comprising a network infrastructure wherein a user terminal is configured to associate each data unit of a logical channel with a logical channel-specific sequence number in a medium access control entity (paragraph 33-37; Fig. 6, data blocks 180 on transmitter side are transmitted and rearranged as data blocks 190 on the receiver side).

In regard to claim 32, Yi discloses a radio system comprising:

- a network infrastructure (Fig. 1); and
- at least one user terminal communicating with the network infrastructure over an air interface, wherein
 - a user terminal is configured to associate each data unit of a logical channel to be sent within one transmission time interval with on logical channel-specific sequence numbers;
 - the network is configured to receive the data units of at least one logical channel associated with sequence numbers; and
 - the network infrastructure is configured to arrange the data units of each logical channel in order of the sequence (paragraph 33-37; Fig. 6, data blocks 180 on transmitter side are transmitted and rearranged as data blocks 190 on the receiver side).

In regard to claim 33, Yi discloses the radio system of claim 32 wherein a user terminal is configured to associate each data unit of a logical channel in one transmission time interval with one sequence number and the user terminal is configured to associate data units in successive transmission time interval with successive sequence numbers (paragraph 33-37; Fig. 6, data blocks 180 on transmitter side are transmitted and rearranged as data blocks 190 on the receiver side).

In regard to claim 39, Yi discloses a radio system comprising:

a transmitter, the transmitter being configured associate each data unit of a logical channel to be sent within one transmission time interval with one logical channel-specific sequence number (paragraph 33-37; Fig. 6, data blocks 180 on transmitter side are transmitted and rearranged as data blocks 190 on the receiver side).

In regard to claim 40, Yi discloses a user terminal of a radio system comprising a network infrastructure, wherein a user terminal is configured to associate each data unit of a logical channel to be sent within one transmission time interval with one logical channel-specific sequence number (paragraph 33-37; Fig. 6, data blocks 180 on transmitter side are transmitted and rearranged as data blocks 190 on the receiver side).

In regard to claim 29, Yi discloses the user terminal of claim 40, wherein the user terminal is configured to associate data units of each logical channel with sequence numbers in a medium access control entity, in a radio link control entity or at an entity between a radio link control entity and a medium access control entity of a user terminal (paragraph 33-37).

In regard to claim 30, Yi discloses the user terminal of claim 29, wherein the user terminal is configured to transmit the data units to the network infrastructure and to perform at least one retransmission as a response to a

request from the network infrastructure over an air interface, the retransmission including at least one data unit of a logical channel (paragraph 48-50).

In regard to claims 38, 19 and 21-23 Yi discloses a computer program product that performs the entire steps described within the claims (paragraph 198).

In regard to claim 41, Yi discloses an apparatus, wherein
the apparatus is configured to receive data units of at least one logical channel from a transmitter, each data unit of a logical channel sent within one transmission time interval being associated with one logical channel-specific sequence number in the transmitter; and

the apparatus is configured to arrange the data units of each logical channel in order according to the sequence numbers associated with the data units (paragraph 33-37; Fig. 6, data blocks 180 on transmitter side are transmitted and rearranged as data blocks 190 on the receiver side).

In regard to claim 42, Yi discloses a network element of a radio system, wherein

the network element is part of the network infrastructure (Fig. 1, Node B 122);

the network element is configured to receive data units of at least one logical channel from a transmitter, each data unit of a logical channel sent within

one transmission time interval being associated with one logical channel-specific sequence number in the transmitter; and

the network element is configured to arrange the data units of each logical channel in order according to the sequence numbers associated with the data units (Fig. 6, data blocks 180 on transmitter side are transmitted and rearranged as data blocks 190 on the receiver side).

In regard to claim 43, Yi discloses an apparatus, wherein the apparatus is configured to receive data units of at least one logical channel from a transmitter, each data unit of a logical channel being associated with a logical channel-specific sequence number in the transmitter; and the apparatus is configured to arrange the data units of each logical channel in order according to the sequence numbers associated with the data units in a medium access control entity (paragraph 33-37; Fig. 6, data blocks 180 on transmitter side are transmitted and rearranged as data blocks 190 on the receiver side).

In regard to claim 44, Yi discloses a computer program product of a radio system that performs the entire steps described within the claims (paragraph 198).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
4. Claims 6-7, 10, 12-15 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yi in view of Cheng et al (US Publication 2004/0228313), hereinafter, referred as Cheng.

In regard to claim 6, Yi discloses all the limitations of the method of claim 1, but fails to teach the further limitations of claim 6. Cheng teaches the mapping medium access control-e flows from a medium access control-d entity to transport channels in a medium access control-e entity of the user terminal; and associating data units with sequence numbers common to the medium access control-d entity and the medium access-e entity (see fig 3, MAC-d #320 and MAC-EU #340; paragraph 40, lines 1-3 and paragraph 47). Therefore it would

have been obvious to one of ordinary skill in the art at the time of the invention to modify the Yi teaching to include the mapping of the data to improve uplink transmission. One is motivated by such because using the transport channels of the medium access control-e entity allows for high uplink rates.

In regard to claim 7, Yi discloses all the limitation of the method of claim 1, but fails to teach transmitting the data units using enhanced uplink dedicated channel. Cheng teaches in paragraph 47 that data units (MAC-d flows that are the input of MAC-EU 340) are transmitted using the enhanced uplink dedicated channel (output of the MAC-EU). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Yi teaching to use an enhanced uplink dedicated channel for transmitting the data units. One is motivated by such in order "to be able to schedule a specific UE with a relatively good channel condition to send high rate uplink data based on the UE's capabilities" (paragraph 22).

In regard to claim 10, Yi disclose all the limitations of claim 8 but fail to disclose the arranging the data units a radio network controller. Cheng teaches that the HARQ process is performed at the RNC (paragraph 9 and 10). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Yi to include the arranging the data units a radio network controller. One is motivated by such to effectively manage data traffic for transmission in the system.

In regard to claim 27, Yi discloses a radio system configured:

- to receive data units of at least one logical channel from a user terminal, each data unit of a logical channel sent within on transmission time interval being associated with a logical channel-specific sequence numbers in the user terminal; and
- to arrange the data units of each logical channel on order according to the sequence numbers associated with the data units (see Fig. 6, arranged data blocks 13-20 in reordering buffer 190 of receiving side). Yi discloses that is method is performed in the MAC entity of the receiver but fails to teach that the method is configured at the radio network controller. Cheng further teaches that the MAC entity resides in the radio network controller. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Yi teaching to include receiving at the radio network controller. One is motivated by such to effectively manage data traffic for transmission in the system.

In regard to claims 12 -15, Yi discloses all the limitations of claim 36 but fail to disclose that the data units are re-ordered in a medium access control-e entity of the receiver and that data units are given a common medium access control-e header to medium access control-d data units having the same logical channel number and the same sequence number. Cheng teaches that data units are re-ordered in the MAC-EU entity of the receiver (Fig.3, MAC-EU 340 and Fig.

5, re-ordering section 547; paragraph 55-57). Cheng further discloses that the when the MAC-EU data unit is disassembled in the receiver that the MAC-EU header is removed leaving the MAC-d data unit (paragraph 57). Therefore it is obvious that the MAC-EU header is added to the MAC-d data unit in the transmitter. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Yi teaching to include re-ordering the data unit in the MAC-e entity and adding the MAC-e header. One is motivated by such in order "ensure a largest achievable throughput in the uplink" (paragraph 47).

Response to Arguments

5. Applicant's arguments filed 9/28/2007 have been fully considered but they are not persuasive.

On page 24, applicant asserts that the reference Yi does not teach or suggest that the data units of one logical channel are numbered but the data units of multiple data units are numbered. However the examiner can not agree. Applicant points out that in Figure 4 logical channels go through multiplexing before passing to MAC-hs. Yi discloses that when logical channels are multiplexed a priority class is added to each channel and data units are stored based on priority (paragraph 33-34). Yi further discloses are transmitted and sequentially numbered based on the priority level (paragraph 34-36). These teachings disclose the necessary limitations that applicant suggests are missing.

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On page 25, applicant asserts that the combination of Yi and Cheng does not teach or suggest the missing element of a data unit of a logical channel as recited in claim 1. Yi does teach this element as mentioned in the preceding paragraph therefore teaching the necessary limitations that applicant suggests are missing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdias Mondesir whose telephone number is 571-270-3014. The examiner can normally be reached on M - Th 7:30am - 5:00pm and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on 571-272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AM



GEORGE ENG
SUPERVISORY PATENT EXAMINER